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**September 13, 2004**

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| **MAIL STOP APPEAL BRIEF - PATENTS** | | | |

**From:** Holly Tuynman

**Total Pages:** 24

**Direct Dial:** 713.220.5846

**Re:** **U.S. Application Serial No. 09/890,807**

**Message:** Attached for official filing under 37 C.F.R. 1.8(a), please find:

- Appeal Brief w/ Table of Contents (21 pages)
- Fee Transmittal (in duplicate)

| | | |
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PTO/SB/17 (01-03)

# FEE TRANSMITTAL for FY 2004

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| Complete if Known | |
|---|---|
| *Application Number* | 09/890,807 |
| *Filing Date* | January 3, 2002 |
| *First Named Inventor* | Michael J. Fawcett |
| *Examiner Name* | Alexander Gillman |
| *Group / Art Unit* | 2833 |
| *Attorney Docket No.* | H053310.0097US0 |

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   ___ Applicant claims small entity status. See 37 CFR 1.27
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## FEE CALCULATION

### 1. Basic Filing Fee

| Large Entity Fee Code | Large Entity Fee ($) | Small Entity Fee Code | Small Entity Fee ($) | Fee Description | Fee Paid |
|---|---|---|---|---|---|
| 1001 | $770 | 2001 | $385 | Utility Filing Fee | $ |
| 1002 | $340 | 2002 | $170 | Design Filing Fee | $ |
| 1003 | $530 | 2003 | $265 | Plant Filing Fee | $ |
| 1004 | $770 | 2004 | $385 | Reissue Filing Fee | $ |
| 1005 | $160 | 2005 | $ 80 | Provisional Filing Fee | $ |
| | | | | **Subtotal (1)** | $0 |

### 2. Extra Claim Fees

| Claims | | Extra | | Fee (below) | | Fee Paid |
|---|---|---|---|---|---|---|
| Total | -20** = | | x | $ | = | $ |
| Indep. | - 3** = | | x | $ | = | $ |
| Multiple Dependent | | | | | | $ |

**or number previously paid, if greater.

For Reissues, see below

| Large Entity Fee ($) | Small Entity Fee ($) | Fee Description |
|---|---|---|
| $ 18 | $ 9 | Claims in excess of 20 |
| $ 86 | $ 43 | Independent claims in excess of 3 |
| $ 290 | $ 145 | Multiple dependent claim, if not paid |
| $ 86 | $ 43 | **Reissue independent claims over original patent |
| $ 18 | $ 9 | **Reissue claims in excess of 20 and over original patent |
| | | **Subtotal (2)** $ 0 |

## FEE CALCULATION (continued)

### 3. Additional Fees

| Large Entity Fee Code | Large Entity Fee | Small Entity Fee Code | Small Entity Fee | Fee Description | Fee Paid |
|---|---|---|---|---|---|
| 1051 | $ 130 | 2051 | $ 65 | Surcharge - late fee or oath | $ |
| 1052 | $ 50 | 2052 | $ 25 | Surcharge - late provisional filing fee or cover sheet | $ |
| 1812 | $2,520 | 1812 | $2,520 | Request for Reexamination | $ |
| 1804 | $920* | 1804 | $920* | Requesting publication of SIR prior to Examiner action | $ |
| 1805 | $1840* | 1805 | $1840* | Requesting publication of SIR after Examiner action | $ |
| 1251 | $ 110 | 2251 | $ 55 | Extension for reply within first month | $ |
| 1252 | $ 420 | 2252 | $ 210 | Extension for reply within second month | $ |
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| 1401 | $ 330 | 2401 | $ 165 | Notice of Appeal | $ |
| 1402 | $ 330 | 2402 | $ 165 | Filing a brief in support of an appeal | $ 165.00 |
| 1403 | $ 290 | 2403 | $ 145 | Request for oral hearing | $ |
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| 1453 | $1,330 | 2453 | $ 665 | Petition to revive - unintentional | $ |
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| 1503 | $ 640 | 2503 | $ 320 | Plant issue fee | $ |
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Submitted by:

Richard A. Schafer, Reg. No. 45,078

Date: 9/13/2004

**MAIL STOP APPEAL BRIEF–PATENTS**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**



| | | | |
|---|---|---|---|
| In re Appellant: | § | Conf. No.: | 6737 |
| MICHAEL J. FAWCETT<br>PETER ERIC RYDE | §<br>§<br>§ | | |
| Filed: January 3, 2002 | § | Art Unit: | 2833 |
| Serial No.: 09/890,807 | § | Examiner: | Alexander Gillman |
| For: ISOLATING CONNECTOR | § | Docket No.: | H053310.0097US0 |
| | § | Customer No.: | 1200 |

**APPEAL BRIEF**

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**CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. 1.8**

I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office at facsimile number 703-872-9306, on the date indicated below.

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9-13-2004 (Date) Holly Tuynman (Signature)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

| | | | |
|---|---|---|---|
| In re Appellant: | § | **Conf. No.:** | 6737 |
| MICHAEL J. FAWCETT<br>PETER ERIC RYDE | §<br>§<br>§ | | |
| Filed: January 3, 2002 | § | Art Unit: | 2833 |
| Serial No.: 09/890,807 | §<br>§ | Examiner: | Alexander Gillman |
| For: ISOLATING CONNECTOR | §<br>§ | Docket No.: | H053310.0097US0 |
| | §<br>§ | Customer No.: | 1200 |

**APPEAL BRIEF**

Appellants submit their Appeal Brief on behalf of their assignee from the Final Rejection dated April 20, 2004. The present application is assigned to Rota Engineering, Ltd. Appellants filed a timely Notice of Appeal with appropriate fee on August 12, 2004. The Commissioner is hereby authorized to charge the fee of $165.00 for filing an appeal brief to Deposit Account No. 16-2435. The Commissioner is hereby authorized to charge any additional fees that may be required or credit any overpayment to Deposit Account No. 16-2435.

## I. REAL PARTY IN INTEREST

The present application is assigned of record to Rota Engineering, Ltd., a United Kingdom limited company.

## II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences which will directly affect or be directly affected by this Board's decision in the present appeal.

## III. STATUS OF THE CLAIMS

Claims 1-9 and 11-13, which are all the pending claims of the present application, are the appealed claims. Claim 10 was previously cancelled. The claims are set forth in their present form in Appendix A to this Brief.

## IV. STATUS OF AMENDMENTS

No amendments are pending.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

In brief, the subject matter of independent claim 1 relates to a connector for interconnecting or mutually isolating two or more circuits, which ensures that connector elements engage and disengage in a desired order, ensuring that the circuits connect and disconnect inside a closed chamber.[1] Two interchangeable connector elements are each connected to a circuit.[2] At least one of the connector elements has a first contact[3] connected to the circuit and a displaceable contact holder[4] carrying a second contact[5] and a third contact interconnected with each other.[6] The contact holder is displaceable between a first position, in which the first and second contacts are separated[7] and a second position in which the first and second contacts are interconnected.[8]

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[1] Figs. 3–9 and Specification, p. 4 line 26–p. 5, line 32; Figs. 10–15 and Specification, p. 6, lines 1–30.

[2] Illustrated by elements 1 and 2 of Fig. 1; Specification, p. 3, lines 13–16.

[3] Illustrated by element 12 or 36 of Fig. 2; Specification, p. 3, line 25–p. 4, line 26.

[4] Illustrated by element 4 or 30 of Fig. 2; Specification, p. 3, line 27–p. 4, line 3 and p. 4, lines 16-18.

[5] Illustrated by element 14 or 35 of Fig. 2; Specification, p. 3, line 28–p. 4, line 1 and p. 4, lines 17-20.

[6] Illustrated by element 15 or 34 of Fig. 2; Specification, p. 3, lines 28–29 and p. 4, lines 16–18.

[7] *See* Fig. 2.

[8] *See, e.g.*, Figs. 6–9 and Specification, p. 5, lines 15–17 and 24–26.

The connector elements include means for ensuring the contact holder is not displaced from the first position to the second position upon interengagement of the connectors unless the third contact is connected with a contact of the other connector element. The means for ensuring the contact holder is not displaced is to be interpreted under 35 U.S.C. § 112, sixth paragraph, and the structure corresponding to the means for ensuring the contact holder is not displaced is a locking ball,[9] a slider,[10] and a series of compression springs.[11]

The connector elements include means for ensuring the contact holder is displaced from the second position to the first position on disengagement. The means for ensuring the contact holder is displaced is to be interpreted under 35 U.S.C. § 112, sixth paragraph, and the structure corresponding to the means for ensuring the contact holder is displaced is a lock ball.[12]

The connector elements also include means for ensuring that the first and second contact separate on disengagement before the third contact separates from the contact of the other connector, such that when separated the first and second contacts are located within a closed chamber defined within the connector element.[13] The means for ensuring that the first and second contact separate is to be interpreted under 35 U.S.C. § 112, sixth paragraph, and the structure corresponding to the means for ensuring that the first and second contact separate is a lock ball[14] and a corresponding recess.[15]

The connector elements also include means for locking the third contact of the contact holder to the contact of the other connector element unless the first and second contacts are separated. The means for locking the third contact of the contact holder is to be interpreted under 35 U.S.C. § 112, sixth paragraph, and the structure corresponding to the means for locking the third contact of the contact holder is a lock ball.[16]

The Specification also describes alternative structures for the various "means for" elements, including, for example, shaped pins instead of lock balls.[17]

---

[9] Illustrated by element 16 or 31 of Fig. 2; Specification, p. 5, lines 2–5 and 20–23.
[10] Illustrated by element 6 or 20 of Fig. 2; Specification, p. 3, lines 20–23 and p. 4, lines 5–7.
[11] Illustrated by element 7 or 21 of Fig. 2; Specification, p. 3, lines 22–23 and p. 4, lines 6–7.
[12] Illustrated by element 33 of Fig. 2; Specification, p. 4, lines 16–17.
[13] Specification, p. 6, lines 1–30.
[14] Illustrated by element 33 of Fig. 2; Specification, p. 6, lines 5-7 and 25-30.
[15] Illustrated in Fig. 2, but unnumbered; *See, e.g.*, lock ball 33 in this recess in Fig. 4.
[16] Illustrated by element 33 of Fig. 2; Specification, p. 6, lines 25-30.
[17] Specification, p. 8, line 3–p. 9, line 3.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1–9, and 11–12 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

Claims 1–9 and 11–12 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 5 stand rejected under 35 U.S.C. § 102(b) as anticipated by Bac, U.S. Patent 3,360,764.

Claims 2–4, 6–8, and 11–13 stand rejected under 35 U.S.C. § 103(a) as obvious over Bac, U.S. Patent 3,360,764.

## VII. ARGUMENT

### A. Summary of Argument

Appellants respectfully submit that the rejections under 35 U.S.C § 112, first paragraph are erroneous because the Specification clearly recites structure that enables one skilled in the art to make and/or use the invention and because the Examiner has failed to carry his burden to present arguments to the contrary. Appellants respectfully submit that the rejections under 35 U.S.C. § 112, second paragraph are erroneous because neither the statutes nor the Rules require an express recital that describes what structure is to be interpreted as the "means for ensuring" or the "means for locking" recited in claim 1, as has been improperly demanded by the Examiner. Appellants respectfully submit that in rejecting the claims under 35 U.S.C. § 102(b) over Bac, the Examiner has ignored Bac's failure to recite a structure that ensures connection and disconnection of the elements in the recited desired order, even though Bac may connect or disconnect in that order. Appellants respectfully submit that the rejection of the claims under 35 U.S.C. § 103(a)

over Bac is improper because the rejected claims depend from allowable claim 1 and are therefore also allowable.

B. Claim Rejections Under 35 U.S.C. § 112, first paragraph

Claims 1–9, and 11–12 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

1. *The Rejection Under 35 U.S.C. § 112, First Paragraph Is A New Ground for Rejection*

First, Appellants note that this rejection was a new ground of rejection introduced in the final Office Action, without amendment by Appellants of the rejected claims. Therefore, finality of the Office Action was improper and should have been withdrawn.[18]

2. *The Examiner Failed To Carry His Burden To Present a Reasonable Basis for the Rejection*

Second, the Examiner completely failed to carry his burden. The Examiner, in raising this ground of rejection for the first time, failed to indicate what features of the claimed subject matter are not enabled. Furthermore, the Examiner failed to provide any reasoning why the claimed subject matter is not enabled. The minimal requirement for an Examiner is to give reasons for the uncertainty of the enablement.[19] Therefore, the Examiner failed to carry his burden of presenting a reasonable basis to question the enablement provided for the claimed invention.[20]

Appellants Specification clearly describes, both in the written description and in the drawings, the structure and operation of every element of the claimed connector, as

[18] Although a rejection under 35 U.S.C. § 112, first paragraph was made in the first Office Action, mailed July 3, 2002 (Paper 6), that rejection was implicitly withdrawn after Appellants' Response and Amendment, filed October 10, 2002. Office Action mailed March 31, 2003 (Paper 8).

[19] MPEP 2164.04, citing *In re Bowen*, 492 F.2d 859, 862–63, 181 U.S.P.Q. (BNA) 48, 51 (CCPA 1974).

[20] MPEP 2164.04, citing *In re Wright*, 999 F.2d 1557, 1562, 27 U.S.P.Q.2d (BNA) 1510, 1513 (Fed. Cir. 1993).

shown in the description of Claim 1 in the Summary of Claimed Subject Matter section above. One of ordinary skill in the art would be able to make and use the invention based on this written description and the drawings. For these reasons, Appellants respectfully submit the final rejection of claims 1–9 and 11–12 under 35 U.S.C. § 112, first paragraph is clearly erroneous and should be reversed

C. Claim Rejections Under 35 U.S.C § 112, second paragraph

Claims 1–9 and 11–12 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

*1. Neither the Statute nor the Guidelines Depended Upon by the Examiner Require Express Language Specifying the Correspondence Between Disclosed Structure and "Means For" Claim Elements*

Attorney for Appellants and the Examiner held a telephonic interview on June 21, 2004. The rejections under 35 U.S.C. § 112, second paragraph were considered, but no agreement was reached. The Examiner pointed to the Office's Supplemental Examination Guidelines for Determining the Applicability of 35 U.S.C. § 112, para. 6, as published in the Federal Register on June 16, 2000 (the "Guidelines") in support of the rejections.

Appellants have reviewed the Supplemental Guidelines, which do not have the force of law. The Examiner asserts that the "means for" claim language is indefinite because the specification does not expressly recite a description of what structure is to be interpreted as the "means for ensuring" or the "means for locking." Appellants respectfully disagree.

Contrary to the Examiner's position, neither the statute nor the Guidelines, which do not have the force of law, require express language in the Specification specifying

which elements comprise the corresponding structure for "means for" language in the claims. The statute only requires disclosure of an adequate structure for performing the recited function. In fact, in some circumstances, the written description does not even have to disclose the actual structure explicitly. Rather, as the Guidelines recognize, the specification may implicitly disclose the corresponding structure, such that one of ordinary skill in the art would recognize what structure or material performs the claimed function.[21]

In the present application, the Examiner does not and cannot argue that the structure corresponding to the "means for" language is not explicitly disclosed in the Specification, because Appellants have expressly identified that structure, both in the telephonic interview of June 21, 2004, in the Request for Reconsideration filed July 20, 2004, and in the Summary of Claimed Subject Matter, above, as required by 37 C.F.R. § 41.37(c)(1)(v).[22] Rather, the Examiner has ignored the disclosed structure and asserted only that

> The means for ensuring (means 1) and means for locking (means 2) are not adequately described in the specification . It is not specified, it is not structurally supported which of elements are related to means 1 (which of 'individual components' – the term used in the Remarks of Amendment filed 01/21/04 – comprise means 1) and which of elements are related to means 2 (lock balls only or lock balls and other individual components that comprise each of means 2).
>
> If claim is interpreted under 112 paragraph 6, the specification should adequately describe the corresponding structure that carries out the recited function in the claims. This requirement is satisfied if the written description links or associates particular structure to the recited function. Additionally Remarks of the Amendments suggest that alternative arrangements (not described in the Specification)

[21] Guidelines, Section II.

[22] *See* p. 2, *supra*.

> can be interpreted as the respective means (Remarks , p. 5 of the Amendments, the last section)[23]

First, the Examiner has conflated two separate "means for" clauses in Claim 1 into a single means, apparently because both of them begin with "means for ensuring," while ignoring the remainder of the functional language that describes what is ensured. As shown in the Summary of Claimed Subject Matter, and as was argued by Appellants in responses to the Office Actions, the "means for ensuring that on interengagement the contact holder is not displaced from the first to the second position unless the third contact is interconnected with a contact of the other connector element" is separate from the "means for ensuring that on disengagement the contact holder is displaced from the second to the first position." Note that the Examiner ignores the third "means for ensuring" of Claim 1, the "means for ensuring that on disengagement the first and second contacts separate before the third contact is separated from the said contact of the other connector element."

Second, the Examiner has ignored the express language of page 8 of Appellants' Specification describing "alternative arrangements" to those illustrated in the Figures, asserting that Appellants' previous Remarks "suggest that alternative arrangement (not described in the Specification) can be interpreted as the respective means."[24] Appellants are entitled to describe alternative embodiments in the Specification.

Third, "the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination."[25] In addition, Appellants clarified for the record in the Request for Reconsideration filed July

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[23] Paper 04162004, pp. 2–3.

[24] Paper 04162004, p. 3.

[25] *In re Donaldson Co.*, 16 F.3d 1189, 1194–95, 29 U.S.P.Q.2d (BNA) 1845, 1850 (Fed. Cir. 1994) (en banc).

20, 2004, as previously expressed in the telephonic interview of June 21, 2004, the corresponding structure disclosed in the Specification for those "means for" elements.

2. *Appellants' Specification Discloses Structure Corresponding to Every Claimed "Means For" Element*

Referring to Claim 1, one example of the corresponding structure for the "means for ensuring that on interengagement the contact holder is not displaced from the first to the second position unless the third contact is interconnected with a contact of the other connector element" is elements locking ball 16, slider 6, and a series of compression springs 7 of the male connector element 1. A second example is the corresponding elements 31, 20, and 21 of the female connector element 2. These elements are best illustrated by Figure 2, and are described on pages 3–5 of the specification, which describes how these elements ensure the contact holder is not displaced prematurely. Lock ball 16 retains sliding contact holder 4 in position until contacts 15 and 34 have connected. Slider 6 in a first position retains lock ball 16 such that sliding contact holder 4 cannot move. Compression springs 7 resiliently bias slider 6. Similarly, lock ball 31 retains sliding contact holder 30 in position until contacts 15 and 34 have connected. Slider 20 in a first position retains lock ball 31 such that sliding contact holder 30 cannot move. Compression springs 21 resiliently bias sliders 20. One of ordinary skill in the art would therefore understand the corresponding structure to the "means for ensuring that on interengagement the contact holder is not displaced." Therefore, the written description is not indefinite.

One example of the corresponding structure for the "means for ensuring that on disengagement the contact holder is displaced from the second to the first position" comprises lock ball 33 and the corresponding recess for lock ball 33 in contact holder 4. The recess is not specifically labeled, although Appellants has previously offered to submit

an amendment to add a reference number for that recess upon request. However, lock ball 33 can be seen located in the recess in, for example, Figure 4. The function of the lock balls 33 is described in the specification at page 6, lines 5-7 and 25-30, among others. One of ordinary skill in the art would therefore understand the corresponding structure to the "means for ensuring that on disengagement the contact holder is displaced from the second to the first position." Therefore, the written description is not indefinite.

Lock ball 33 also is one example of the corresponding structure for the "means for ensuring that on disengagement the first and second contacts separate before the third contact is separated from the corresponding contact of the other connector element." Once the first and second connector elements are connected together, lock ball.33 prevents sliding contact holders 4 and 30 from separating until pin and socket connections 12 and 14 have disengaged. Lock ball 33 similarly prevents sliding contact holders 4 and 30 from separating until pin and socket connections 35 and 36 have disengaged. One of ordinary skill in the art would therefore understand the corresponding structure to the "means for ensuring that on disengagement the first and second contacts separate before the third contact is separated from the corresponding contact of the other connector element." Therefore, the written description is not indefinite.

Lock ball 33 also is one example of the corresponding structure for the "means being provided for locking the third contact of the contact holder to the said contact of the other connector element unless the first and second contacts are separated" recited by claim 1.[26] One of ordinary skill in the art would therefore understand the corresponding structure to the "means ... for locking the third contact of the contact holder to the said

[26] Specification, p. 6, lines 21-30.

contact of the other connector element unless the first and second contacts are separated." Therefore, the written description is not indefinite.

The Specification also describes alternative arrangements to those described above, such as replacing locking balls with sliding rods or the like.[27] However, these alternative arrangements do not remove the disclosure of structure corresponding to the respective "means for" elements described above, but merely recite additional structure that can be used in the alternative for the disclosed structure identified above.

The Specification therefore provides the corresponding structure for and provides adequate support and written description for the claimed "means for ensuring that on interengagement the contact holder is not displaced from the first to the second position unless the third contact is interconnected with a contact of the other connector element," the "means for ensuring that on disengagement the contact holder is displaced from the second to the first position," the "means for ensuring that on disengagement the first and second contacts separate before the third contact is separated from the corresponding contact of the other connector element," and the "means ... for locking the third contact of the contact holder to the said contact of the other connector element unless the first and second contacts are separated" in terms that would be understood as such to one of ordinary skill in the art. For these reasons, Appellants respectfully submit the final rejection of claims 1 under 35 U.S.C. § 112, second paragraph is erroneous and should be reversed.

### 3. *Dependent Claims 2–9 and 11–12*

Claims 2–9 and 11–12 depend from allowable claim 1 and are therefore also allowable. The Examiner failed to indicate any alleged shortcomings in the written

[27] *See* Specification, p. 8-9.

description of the dependent claims, other than their dependency from rejected claim 1. For at least this reason, Appellants respectfully submit the final rejection of claims 1 under 35 U.S.C. § 112, second paragraph is clearly erroneous and should be reversed.

D. Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1 and 5 stand rejected under 35 U.S.C. § 102(b) as anticipated by Bac, U.S. Patent 3,360,764.

1. *Appellants' Claimed Connector Ensures Connection and Disconnection Only Occur When the Connector is in a Desired State*

In order to clarify the sequence of events during connection and disconnection of the first and second interchangeable connector elements the following comments may prove helpful.

The lock ball 31 cannot release and move away from the female connector sliding contact holder 30 until the female connector slider 20 has moved far enough against the biasing force of the spring 21 and until contacts 15 and 34 have engaged. Only after contacts 15 and 34 have engaged has slider 20 moved sufficiently far to allow lock ball 31 to move out of contact with female connector slider 20. At the point at which lock ball 31 releases, lock ball 16 continues to prevent axial movement of sliding contact holder 4. Lock ball 16 does not release until contacts 35 and 36 have connected.

Upon disengaging the first and second connector elements, lock ball 33 keeps sliding contact holder 4 and sliding contact holder 30 locked together, retaining engagement of contacts 15 and 34. Lock ball 33 only releases once contacts 12 and 14 and contacts 35 and 36 have released. Only after these contacts have released does lock ball 33

have sufficient space to move radially outwards into the adjacent recess[28] and thus allow separation of the two sliding contact holders 4 and 30.

First, the connector of Bac depends upon one part of the connector being fixed in a wall. The connector comprises a fixed part A, "intended to be mounted in an aperture1 provided in the outside wall 2 of [a device], and a movable part B." Bac refers to these fixed and movable parts as "fundamental parts of the apparatus."[29] Connection of parts A and B of Bac depends upon the presence of wall 2:

> The collar 40 of the ring 39 of the body 28 is applied against the wall 2 of the device and then, as the insertion movement continues, the connecting pins 36 of part B are engaged in the female connecting parts 26, the ring 39 being pushed back on the body28 against the action of the spring 42 until the front edge of the widened portion 29 of the body 28 strikes against the collar 16 of the sleeve 15 of the part A.[30]

Appellants' claimed connector is not so limited, but can be used for interconnecting two or more circuits, without the limitation of either part being fixed in an aperture of a device, as in Bac.

2. *However, the Connector of Bac Fails To Ensure the Desired Connection or Disconnection Sequence*

Even if the connector of Bac ***can*** disconnect in the desired order, Bac fails to recite a structure that ***ensures*** such an order, as required by claim 1. This claim limitation cannot simply be ignored.

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[28] Not labeled, but as stated above, Appellants will submit a drawings amendment upon request to provide a reference number for the recess. Fig. 14–15 best show the recess into which lock ball 33 moves outwardly, with Fig. 15 showing lock ball 33 in the recess, allowing separation of sliding contact holder 4 and sliding contact holder.

[29] Col. 7, lines 21-26.

[30] Col. 6, lines 31-38.

Second, the Bac connector fails to ensure the desired connection and disconnection sequence, because the connector depends upon spring forces to cause disconnection to occur in the desired order. The relative spring strength of springs 42 and 18 are critical to the disconnection sequence. Should, for example, spring 18 have a lesser strength than spring 42, parts A and B may disconnect in an undesired order, allowing disconnection of pins 36 from female connecting parts 26 prior to disconnection of pins 25 from female connecting parts 13. Springs are known to lose their strength over time, even if upon initial construction the relative spring strengths caused the desired sequence. Thus, gradual weakening of springs can allow an undesired sequence to occur. Likewise, if spring 42 is stronger than spring 18, connection may occur first between pins 25 and female parts 13 prior to connection of pins 36 with female parts 26.

Further, the connector of Bac fails to ensure the desired connection and disconnection sequence in the presence of foreign objects. In actual use, dirt or other foreign substances may come between the fixed and movable parts A and B of Bac, or may coat, block, or otherwise interfere with pins 36 or female connecting parts 26. Such foreign objects can then cause disconnection or connection in an undesired order, potentially causing sparks or other unsafe ignition events, such as by moving sleeve 15 and block 21 before engagement of pins 36 at connection. In addition, a bent pin, which would prevent successful connection of movable part B with fixed part A, may at the same time cause movement of the sleeve 15 and block 21, causing engagement of pins 25 with female connecting parts 13. Bent pins and foreign objects are easily foreseeable and likely in actual use of the connectors.

In addition, high current flow through the connectors can cause one or more of the pins to weld or fuse to its corresponding female part. Should one of pins 26 fuse or electrically weld to a corresponding female connecting part 13, the spring action of springs

18 and 42 would not ensure disconnection of the pins 25 before disconnection of pins 36, thus allowing a dangerous live disconnection of pins 36 in the open space between parts A and B.

In contrast, the locking mechanism of Appellants' claimed subject matter ensures that the connectors cannot disconnect or connect in the wrong order. The locking mechanism of Appellants' claimed subject matter does not depend upon relative spring forces, the presence of an intervening wall in which one part of the connector is mounted, upon the absence of foreign matter. Nor would fusing of pins allow disconnection in an improper order. Thus, Appellants' claimed subject matter is not anticipated by the connector of Bac. For these reasons, Appellants respectfully request reconsideration and withdrawal of the rejections.

3. *Dependent Claims Are Also Allowable*

Claim 5 depends from allowable claim 1 and is therefore also allowable. For at least this reason, Appellants respectfully submit the final rejection of claim 5 under 35 U.S.C. § 102(b) is clearly erroneous and should be reversed.

E. Claim Rejections Under 35 U.S.C. § 103

Claims 2–4, 6–8, and 11–13 stand rejected under 35 U.S.C. § 103(a) as obvious over Bac, U.S. Patent 3,360,764.

Claims 2-4, 6–8, and 11–13 depend from allowable claim 1 and are therefore also allowable. For at least this reason, Appellants respectfully submit the final rejection of claims 2-4, 6–8, and 11–13 under 35 U.S.C. § 103(a) is clearly erroneous and should be reversed.

## VIII. CONCLUSION

For reasons set forth in detail above, Appellants respectfully submit that the final rejections of claims 1–9 and 11–12 under 35 U.S.C. § 112, first paragraph, claims 1–9, and 11–12 under 35 U.S.C. § 112, second paragraph, claims 1 and 5 under 35 U.S.C. § 102(b), and claims 2–4, 6–8, and 11–13 under 35 U.S.C. § 103(a) are erroneous.

Reversal of the final rejection of the claims is the appropriate action for this Board. Applicants respectfully request such action.

Respectfully submitted,

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# APPENDIX A

## CLAIMS ON APPEAL (AS AMENDED JANUARY 21, 2004)

1. A connector for interconnecting or mutually isolating two or more circuits, comprising

first and second interengageable connector elements each of which is connected in use to a respective circuit and at least one of which supports

a first contact connected to the respective circuit

and a displaceable contact holder carrying interconnected second and third contacts, the contact holder being displaceable between a first position in which the first and second contacts are separated and a second position in which the first and second contacts are interconnected,

wherein the connector elements comprise means for ensuring that on interengagement the contact holder is not displaced from the first to the second position unless the third contact is interconnected with a contact of the other connector element,

the connector elements comprise means for ensuring that on disengagement the contact holder is displaced from the second to the first position, and

the connector elements comprise means for ensuring that on disengagement the first and second contacts separate before the third contact is separated from the said contact of the other connector element and such that when separated the first and second contacts are located within a closed chamber defined within the said at least one connector element, means being provided for locking the third contact of the contact holder to the said contact of the other connector element unless the first and second contacts are separated.

2. A connector according to claim 1, wherein each connector element supports a respective first contact and a respective displaceable contact holder carrying interconnected second and third contacts such that on interengagement of the connector elements the third contacts are interconnected.

3. A connector according to claim 1, wherein means are provided to prevent the contact holder from being blown out of the associated connector element.

4. A connector according to claim 3, wherein the preventing means comprises a pin received in a slot formed in the contact holder.

5. A connector according to claim 1, wherein the contact holder is slidable in a bore such that the closed chamber is defined between the contact holder and walls of the bore.

6. A connector according to claim 1, wherein the means for locking the contact holder to the said contact of the other connector elements comprise one or more locking balls which are retained in locking engagement between the connector element and the contact holder unless the contact holder is in the first position.

7. A connector according to claim 1, comprising means for locking the contact holder in the first position when the connector elements are separated.

8. A connector according to claim 7, wherein the locking means maintain the contact holder in the first position unless the connector elements are interengaged.

9. A connector according to claim 8, wherein the locking means comprise a spring-biased slider displaceable as a result of interengagement of the connector elements

from one position in which it retains one or more locking balls in locking engagement between the connector element and the contact holder with the contact holder in the first position and a further position in which the locking ball is released and the contact holder is displaceable to the second position.

10. (Cancelled).

11. A connector according to claim 2, wherein means are provided to prevent each contact holder from being blown out of the associated connector element.

12. A connector according to claim 11, wherein the preventing means comprises a pin received in a slot formed in the contact holder.

13. A connector according to claim 7, wherein the locking means locks the contact holder in the first position unless the third contact is interconnected with the contact of the other connector element.